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10/053,458	10/22/2001	Avinash Dalmia	03141-P0377A	3565
24126	7590	03/25/2004	EXAMINER	
ST. ONGE STEWARD JOHNSTON & REENS, LLC			OLSEN, KAJ K	
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STAMFORD, CT 06905-5619			PAPER NUMBER	

1753

DATE MAILED: 03/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/053,458

Applicant(s)

DALMIA ET AL.

Examiner

Kaj Olsen

Art Unit

1753

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) 15-23 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 October 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 4/8/02.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

## DETAILED ACTION

### *Election/Restrictions*

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
  - I. Claims 1-14, drawn to electrochemical gas sensor, classified in class 204, subclass 431.
  - II. Claims 15-23, drawn to method of providing a gas sensor, classified in class 427, subclass 124.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions II and I are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the product can be made without a capping member or without the use of vapor deposition, such as by micromachining.

3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

4. During a telephone conversation with Wes Whitmeyer on 3-18-2004 a provisional election was made without traverse to prosecute the invention of group I, claims 1-14.

Affirmation of this election must be made by applicant in replying to this Office action. Claims 15-23 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Art Unit: 1753

5. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

### ***Drawings***

6. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: 34. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### ***Oath/Declaration***

7. The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration is defective because:

Non-initialed and/or non-dated alterations have been made to the oath or declaration. See 37 CFR 1.52(c).

### ***Double Patenting***

8. Claim 11 is objected to under 37 CFR 1.75 as being a substantial duplicate of claim 10. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim

Art Unit: 1753

to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

***Claim Rejections - 35 USC § 102***

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

10. Claims 1, 2, 5-14 are rejected under 35 U.S.C. 102(b) as being anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Robbie et al (USP 5,866,204).

11. Robbie discloses a device comprising a substrate 10 having a surface, a first electrode (76 or 78) deposited on said surface, a second electrode (the 76 or 78 on element 74) spaced apart from the surface, and a support element 70 placed between the surface and the second electrode and having a predetermined porosity. See fig. 7B and col. 9, lines 9-50, col. 10, lines 32-44.

With respect to the device being a gas sensor, that is only the intended use of the apparatus and the intended use need not be given further due consideration in determining patentability. With respect to the support element 70 being an electrolyte support, that also is only the intended use of the apparatus and the intended use need not be given further due consideration in determining patentability.

12. With respect to helix shaped columns, see fig. 6.

13. With respect to the cap, see col. 7, lines 5-25.

14. With respect to the specified porosities, see col. 10, lines 32-54.

Art Unit: 1753

15. With respect to the pore sizes, although Robbie does not explicitly any pore sizes, it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the broadly claimed ranges of claims 10 and 11, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

16. With respect to the second electrode possessing less porosity, the electrodes are not specified as being porous. Because the electrodes of Robbie do not need to be porous, one possessing ordinary skill in the art would have been motivated to make them with a porosity of less than 5%.

17. With respect to the second electrode providing “improved” lamination to the electrolyte support, this limitation isn’t specifically reciting any structure drawn to whatever the *improvement* is.

18. Claims 1, 5, 8-14 are rejected under 35 U.S.C. 102(b) as being anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Rollick et al (USP 6,129,824).

19. Rollick discloses a substrate having a first electrode (20 or 30) deposited thereon (col. 4, lines 36-50), a second electrode 10 spaced apart from the substrate surface (fig. 1), with an electrolyte support (40 or 50) placed between the first and second electrode (fig. 1). The porosity of wicks 40 and 50 would inherently be a predetermined porosity.

20. With respect to the claimed cap, element 5 would read on the defined cap giving the claim language its broadest reasonable interpretation.

21. With respect to the specified porosities and pore sizes, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the broadly defined

Art Unit: 1753

porosities and pore sizes, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

22. With respect to the second electrode providing “improved” lamination to the electrolyte support, this limitation isn’t specifically reciting any structure drawn to whatever the *improvement* is.

### ***Claim Rejections - 35 USC § 103***

23. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

24. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

25. Claims 1-5 and 7-14 are rejected under 35 U.S.C. 102(b) as anticipated by Kiesele et al (USP 5,281,324) or, in the alternative, under 35 U.S.C. 103(a) as obvious over Kiesele in view of Rollick.

Art Unit: 1753

26. Kiesele discloses an electrochemical gas sensor comprising a substrate 13 inherently having a surface, a first electrode (16 or 20), a second electrode 7 spaced apart from said surface, and an electrolyte support 1 placed between the surface and the second electrode. See fig. 6, and col. 7, lines 18-43. The electrolyte support further includes pores or channels 9 through the support, which means the support has a predetermined porosity. See col. 6, line 49 through col. 7, line 7. With respect to the first electrode being “deposited on said surface”, that is a process of making limitation that should not be given further due consideration in a product claim. Hence, the electrodes 16 or 20 are on a surface of the substrate giving the claim language its broadest reasonable interpretation.

27. Alternatively, Rollick discloses an analogous gas sensor where the first electrode 30 is constructed by depositing it onto a substrate. See col. 4, lines 16-55. Such a configuration provides an electrode with good permeability and with a larger surface area than the first electrode of Kiesele (the electrode of Rollick extends across the entire electrolyte chamber). It would have been obvious to one of ordinary skill in the art at the time the invention was being made to utilize the teaching of Rollick to construct the first electrode of Kiesele in order to provide an electrode with greater surface area and demonstrated good permeability.

28. With respect to the plurality of columns, elements 10 would read on a plurality of columns giving the claim language its broadest reasonable interpretation.

29. With respect to the electrolyte, see Rollick, col. 4, lines 1 and 2.

30. With respect to coating the second electrode, layer 8 of Kiesele is a perfluoropolymer (col. 6, lines 36-38), which the applicant evidenced prevents flooding of the electrode (see p. 15, lines 2-4).



Art Unit: 1753

31. With respect to the presence of a cap, any number of the element of 1 shown in figure 2 would read on the broadly defined cap, giving the claim language its broadest reasonable interpretation.

32. With respect to the specified porosities and pore sizes, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the broadly defined porosities and pore sizes, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

33. With respect to the second electrode providing “improved” lamination to the electrolyte support, this limitation isn’t specifically reciting any structure drawn to whatever the *improvement* is.

34. Claim 13 in the alternative is rejected under 35 U.S.C. 103(a) as being unpatentable over Rollick or Kiesele with or without Rollick in further view of Saito et al (USP 5,421,984).

35. The references set forth all the limitations of the claim, but did not explicitly recite a choice of porosity for the second electrode. Saito teaches in an alternate gas sensor that using a porosity of less than 5% provides a useful balance between gas permeability and deterioration susceptibility (col. 4, lines 17-25). It would have been obvious to one of ordinary skill in the art at the time the invention was being made to utilize the teaching of Saito for the gas sensor of Rollick or Kiesele (with or without Rollick) to provide a use balance between gas permeability and deterioration susceptibility.

Art Unit: 1753

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kaj Olsen whose telephone number is (571) 272-1344. The examiner can normally be reached on Monday through Thursday from 6:30 A.M. to 4:00 P.M. and on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen, can be reached on 571-272-1342. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Kaj Olsen Ph.D.  
Primary Examiner  
AU 1753  
March 22, 2004